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EXAMINER	
GREENE, DANIEL LAWSON	
ART UNIT	PAPER NUMBER
3694	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/815,157	MASTEROV ET AL.	
	Examiner	Art Unit	
	Daniel L. Greene Jr.	3694	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 September 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 4-13* is/are pending in the application.

4a) Of the above claim(s) *10-13* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 March 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 4/22/06, 5/03/06, 1/31/07
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's replies filed 2/5/2007, 10/2/2006 and 9/1/2006 have been received and entered. Claim 3 has been cancelled. Claims 1, 2 and 4-9 have been amended. Claims 10-13 remain withdrawn. Accordingly claims 1,2, and 4-13 are currently pending.

2. Acknowledgment is made of the terminal disclaimer received 9/1/2006. Said terminal disclaimer is under review and the results of said review will be forwarded to Applicant upon completion.

Response to Arguments

3. Applicant's arguments, see pages 7-8, filed 9/1/2006, with respect to the rejection of claims 5 and 9 set forth in section 6 of the previous Office action have been fully considered and are persuasive. Therefore the rejection set forth in said section 6 is withdrawn.

4. Applicant's arguments, see pages 8-10, filed 9/1/2006, with respect to the rejection of claims 4-9 set forth in sections 7a-7f of the previous Office action have been fully considered and are persuasive. Therefore said rejections set forth in said sections 7a-7f are withdrawn.

5. Applicant failed to submit an argument regarding claim 3 and section 7g of the previous Office action because claim 3 was cancelled. Upon review of the amendment to claim 1 it is clear that applicant merely moved the limitations from claim 3 into claim 1. Accordingly the contention the Examiner rose in said section 7g is still pertinent as

evidenced by the 112 rejection set forth below. However since claim 3 was cancelled, the rejection set forth in said section 7g of said previous Office action is withdrawn.

6. Applicant's amendments to the claims have overcome the rejections set forth in sections 8-10 of said previous Office action because, for example, claim 1 has been amended to require the leakage current signal to be measured after the voltage pulse has been turned off.

Claim Objections

7. Claims 1, 5 and 9 are objected to because of the following informalities: The claims recite that the voltage is applied "to" the electrodes instead of "Between" the electrodes. The current phrasing implies that the same voltage is applied to both electrodes. Appropriate correction is required.

Drawings

8. The drawing received 10/2/2006 is acceptable thereby obviating the objection set forth in section 4 of the previous Office action mailed 6/7/2006.

9. Applicant's response to section 5 of the previous Office action mailed, 6/7/2006 has been fully considered but is not persuasive. Merely stating that the voltage pulse circuitry may be any voltage pulse circuitry known in the art and that numerous "off the shelf" products exist that are capable of performing such functions does not specifically disclose any circuitry whatsoever. Indeed, from applicant's arguments it appears applicant is seeking patent protection for merely putting together devices that are already well known. It is not seen wherein any circuitry set forth in the specification

should be modified in order to function as claimed in order to produce the results set forth by applicant. Again, applicant has set forth nothing more than a black box. The Examiner has set forth a concern as to how and in what manner applicant is capable of performing the method set forth in the claims that should be supported by the drawings. Applicant should review the requirement set forth in said section 5 of said previous Office action and submit a description of the internals of the Voltage Pulse Circuitry that is capable of functioning in the manner claimed.

10. Upon further inspection the drawings received 3/31/2004 are objected to because in Figure 7, step 7 should be "Derive Flux" not "Derive neutron Flux".

11. The drawings received 3/31/2004 are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: **31** (paragraph 24), **32** (paragraph 26), and **33** (paragraph 26).

12. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 101

13. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

14. Claims 1, 2 and 4-9 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claims are directed to a statutory category of invention (i.e. a process). However, the claims are directed to a judicial exception (i.e. a mathematical algorithm associated with the determining step); as such, pursuant to the Interim Guidelines on Patent Eligible Subject Matter (MPEP 2106), the claims must have either physical transformation and/or a useful, concrete and tangible result. The claims fail to include transformation from one physical state to another. Although, the claims appear useful and concrete, there does not appear to be a tangible result claimed. Merely determining a magnitude of flux based on the ion current signals would not appear to be sufficient to constitute a tangible result, since the outcome of the determining step has not been used in a disclosed practical application nor made available in such a manner that its usefulness in a disclosed practical application can be realized. As such, the subject matter of the claims is not patent eligible.

15. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

16. Claims 1, 2, 4, 6 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Admitted Prior Art (APA).

Applicant's APA (see figure 1 and paragraphs 1-4 of the specification as filed) sets forth a method for measuring high-energy radiation flux, comprising:

applying a voltage pulse for a predetermined time ("pulse" reads on the time that the power is applied to the electrodes in read mode) to electrodes in an ion chamber,

wherein the ion chamber is filled with a gas capable of forming charged ions by high-energy radiation;

measuring an ion current signal related to ion currents induced by the voltage pulse while the voltage pulse is being applied to the electrodes (reads on the reading the detector gives when being subjected to the incident radiation);

measuring a leakage current signal after the voltage pulse has been turned off and after ion transport has stopped (reads on zeroing out the detector before taking the measurement or after taking the measurement); and

determining a magnitude of the high-energy radiation flux dependent on the ion current signal and the leakage current signal (reads on the output of the detector after being zeroed out before the measurement was made).

Applicant's claims set forth nothing more than the standard procedure of zeroing out a detector. It is old and well known as shown by any of Frommer (col. 2 lines 32-37, lines 65+, etc.), Spanswick (col. 10 lines 40-55, etc.) or Experiment 2-8 (page 4, line 4 "zero adjust") to zero a detector before using it. This is done every day by technicians using hand held multimeters. After the leads are attached and before resistance measurements are taken the meter must be zeroed either by automatic means or manually dialing in the meter.

The use of a secondary reference in connection with a 35 U.S.C. 102 rejection is proper when the secondary reference is cited to show that the primary reference contains an "enabling disclosure". See MPEP § 2131.01.

Further, resort may be had to the teachings of BASIC ELECTRICAL SAFETY wherein before a measurement is to be made on high voltage circuits prior to manual manipulation the multimeter should be tested on a known good power source, i.e. a wall outlet (110VAC) then applied to the circuit in question and then again on the known good power source. These actions ensure the meter is working before testing the circuit and after testing the circuit. This ensures that the meter did not blow up when it was testing the circuit. These actions (zeroing out a meter and testing deenergized circuits) are considered basic electrical safety and basic electrical practices.

It is noted that the claims do not set forth a specific order of the steps to be performed as the method is open ended i.e. comprising.

Resort may also be had to U.S. Patent 4,225,290 to Allington, col. 7 lines 20-26, col. 10 lines 4-7 etc. to show that for at least 26 years it has been known

to adjust systems to provide a zero point, that is to calibrate an amplifier so that there is zero output at zero input. Again this is considered a notoriously old and well known and basic engineering principle.

Regarding claim 2, the determining the magnitude of the high-energy radiation flux would indeed comprise subtracting the leakage current signal from the ion current signal because the detector readout would be zeroed out by, for example, dialing a rheostat to obtain a reading of zero, therefore any reading obtained from the detector would inherently have this leakage current subtracted from it in order to obtain a zero reading before the measurement is taken.

Regarding claim 4, is inherently performed by APA, i.e. determining a gain of an amplifier of the ion current signal and the leakage current signal because if the gain were not determined then the detector would never provide a useable output. That is, that the detector would provide no output without an amplifier gain and would therefor be useless.

Claim 5 is also considered to be inherently disclosed by APA, i.e. wherein the determining the gain of the amplifier comprises applying a ramping voltage to the electrodes in the ion chamber because if the leakage current must be adjusted to bring the detector output to zero then the voltage would be adjusted slowly until a zero output was obtained, therefore the voltage would be ramped. Again, resort may be had to manually zeroing out a multimeter before taking resistance measurements.

Claim 6 is also inherently disclosed in the APA, wherein one of a magnitude of the ion current signal and a magnitude of the leakage current signal is adjusted dependent on the gain of the amplifier because the readout of the detector is dependent on the gain of the amplifier and therefore in order to zero out the detector the amplifier must be adjusted. See the discussion and references above about zeroing amplifiers and meters.

Claim 7 is considered as being inherently disclosed in APA wherein the subtracting the leakage current signal from the ion current signal is dependent on one of a magnitude-adjusted ion current signal and a magnitude-adjusted leakage current signal because in order to zero the detector, any errors that are the result of any amplifiers in the system must also be taken into account and therefor any zeroed out signal has been "magnitude adjusted" in order to be accurate. Therefor the output of the detector (i.e. the ion current signal) inherently has been magnitude adjusted and had the leakage current subtracted from it

Claim 8 is also disclosed by APA further comprising determining a gain of an amplifier of the ion current signal and the leakage current signal, wherein the magnitude of the high-energy radiation flux is proportional to the ion current signal and the gain of the amplifier wherein it is understood that the limitation determining a gain reads on "displaying the output of the detector" and the display will inherently be proportional to the flux upon it as this is what radiation detector do, i.e. provide a means to display the flux incident upon them.

Claim 9 has already been explained above wherein it is understood that the determining the gain of the amplifier comprising applying a ramping voltage to the electrodes reads on adjusting the biasing voltage to achieve a zero reading output

Claim Rejections - 35 USC § 103

17. Claims 1, 2, and 4-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA as applied to claims 1,2 and 4-9 above in view of any of Frommer, Experiment 2-8, or Spanswick.

APA discloses applicant's invention as explained above. If applicant is of the opinion that APA does not disclose zeroing out the detector before taking measurements then resort may be had to any of Frommer, Experiment 2-8, or Spanswick to show it is old and well known to zero out a detector before taking measurements in order to negate the effects of current leakage in said detectors.

At the time of the invention it would have been obvious to one of ordinary skill in the art to zero out the detector of APA as taught to be old and advantageous by any of Frommer, Experiment 2-8, or Spanswick for the benefit of at least providing an accurate reading of the measurement to be taken.

18. Claims 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA as applied to claims 1, 2, and 4-9 above, and further in view of More (US Patent # 6,889,152).

APA discloses applicant's invention as addressed above. If applicant is of the opinion that APA does not disclose a ramping current or voltage applied to the electrodes to determine a gain then resort may be had to More.

More teaches a method for compensating circuits in high-resolution measurements. It is noted that while the embodiments disclosed in More deal with temperature measurements, these embodiments are only exemplary. The teachings of More would apply to any high sensitivity voltage measuring circuit (column 1, lines 25-36). Specifically More teaches the importance of accounting for changes in amplifier gain in a voltage detection circuit. By applying known inputs to the amplifier, the gain of the amplifier can be ascertained and thus corrected for (column 67, lines 10-21). The ramping voltage would be an obvious variant of a series of known inputs.

Thus, it would have been obvious for a person having ordinary skill in the art at the time the invention was made to apply a ramping voltage to the two electrodes to determine the amplifier gain so as account for gain variations over time, thereby allowing correction of the detected signal for high sensitivity measurements, as taught by More.

19. Claims 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of any of Frommer, Experiment 2-8, or Spanswick. as applied to claims 1, 2, and 4-9 above, and further in view of More (US Patent # 6,889,152).

APA as modified above discloses applicant's invention as explained above. If applicant is of the opinion that APA as modified does not disclose a ramping current or voltage applied to the electrodes to determine a gain then resort may be had to More.

More teaches a method for compensating circuits in high-resolution measurements. It is noted that while the embodiments disclosed in More deal with temperature measurements, these embodiments are only exemplary. The teachings of More would apply to any high sensitivity voltage measuring circuit (column 1, lines 25-36). Specifically More teaches the importance of accounting for changes in amplifier gain in a voltage detection circuit. By applying known inputs to the amplifier, the gain of the amplifier can be ascertained and thus corrected for (column 67, lines 10-21). The ramping voltage would be an obvious variant of a series of known inputs.

Thus, it would have been obvious for a person having ordinary skill in the art at the time the invention was made to apply a ramping voltage to the two electrodes to determine the amplifier gain so as account for gain variations over time, thereby allowing correction of the detected signal for high sensitivity measurements, as taught by More.

Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Resplogle et al. (US Patent # 2,756,345) teach an ionization chamber for measuring high-energy radiation flux using an alternating current applied to the electrodes, but using acoustic pressure variations in the ionizing gas as a measure of the magnitude of the flux.

Schmid et al. (US Patent # 3,335,277) teach a neutron detector employing an ionization chamber wherein an alternating voltage is applied to the electrodes (column 2, line 43 – column 3, line 9).

21. Examiner's Note: **The Examiner has cited particular columns and line numbers in the references as applied to the claims for the convenience of the applicant.** Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant, in preparing the responses, to **fully consider the references in entirety** as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

22. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

23. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel L. Greene Jr. whose telephone number is (571) 272-6876. The examiner can normally be reached on Mon-Fri 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James P. Trammell can be reached on (571) 272-6712. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

25. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DIG
2007-04-24

ELLA COLBERT
PRIMARY EXAMINER